

blue PiraT2

WLAN User Guide

Version 1.9.1 - 30.01.2014



Index

1.	LICENSE AGREEMENT	2
2.	PRODUCT LIABILITY	3
3.	Overview & connection scenarios	4
4.	Configuring Wi-Fi feature with the client	5
4.1.	Choosing „Managed“- or „Ad-hoc“- mode	6
4.2.	Set the network-name (ESSID)	7
4.3.	Settings for authentication mode	7
4.4.	Key Input Type.....	8
4.5.	Key Length & Key	9
4.6.	Input “Encryption Key”	10
4.7.	DHCP Mode.....	11
4.8.	Transferring settings to the blue PiraT2	11
5.	Additional Information & Settings for laptop/pc	12
6.	Connecting to the data logger	14
7.	Contact	15

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3. Overview & connection scenarios

The “Wi-Fi” feature of the blue PiraT2 provides the following things:

- Wireless connection to the data logger
- Configuring the data logger
- Downloading data from the data logger
- Reading the actual configuration of the data logger

A license is required for using the Wi-Fi (“Wireless Lan”) on the blue PiraT2. All steps can be performed only with a valid license.

This document refers to blue PiraT2 FW 01.09.01 and blue PiraT2 client version 1.9.1. Some features depending on model and feature license or may not be available in older versions.

Software updates are frequently available in the blue PiraT Service Center. Please make sure to use current software.

There are two ways using the Wi-Fi Feature in the blue PiraT2. The common way is using the data logger in the “infrastructure mode” (Mode A or managed mode). In this Mode you can integrate the data logger in an existing LAN/Wi-Fi infrastructure (see Figure 1).

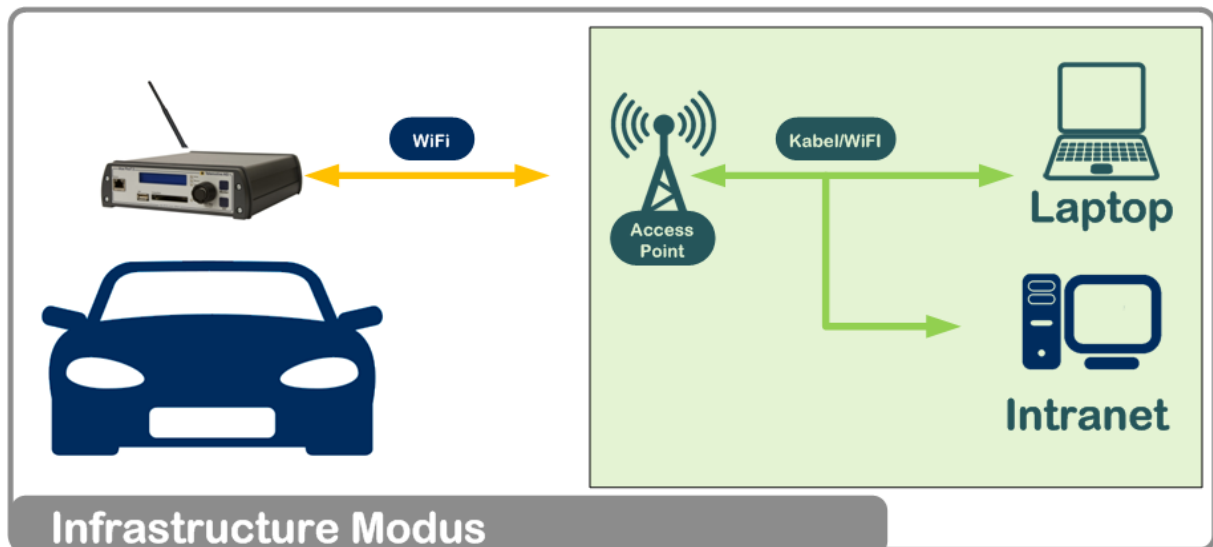


Figure 1: Infrastructure mode

The second mode (Mode B) is the “Ad-hoc” configuration. This scenario can be used if you want to connect to the data logger directly with a notebook (see Figure 2).

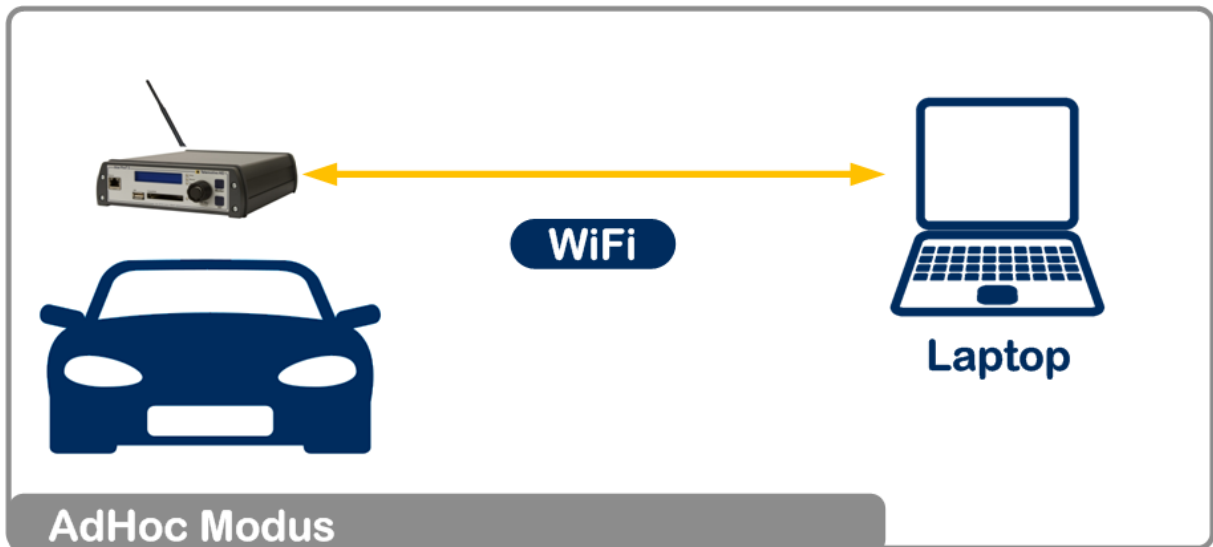


Figure 2: Ad-hoc mode

Notice:

You also have to configure your notebook for “Ad-Hoc” connections. You need an administration account on your notebook.

4. Configuring Wi-Fi feature with the client

For configuring both modes (Managed/Ad-hoc) a connection to the data logger with the client is required. Please connect to the data logger and start the client.

If you configure the logger the first time for Wi-Fi, you have to connect via LAN. Later you can also change the configuration via Wi-Fi, if the Wi-Fi connection already exists.

In the logger configuration menu "General" choose the sub menu "WLAN" (see Figure 3).

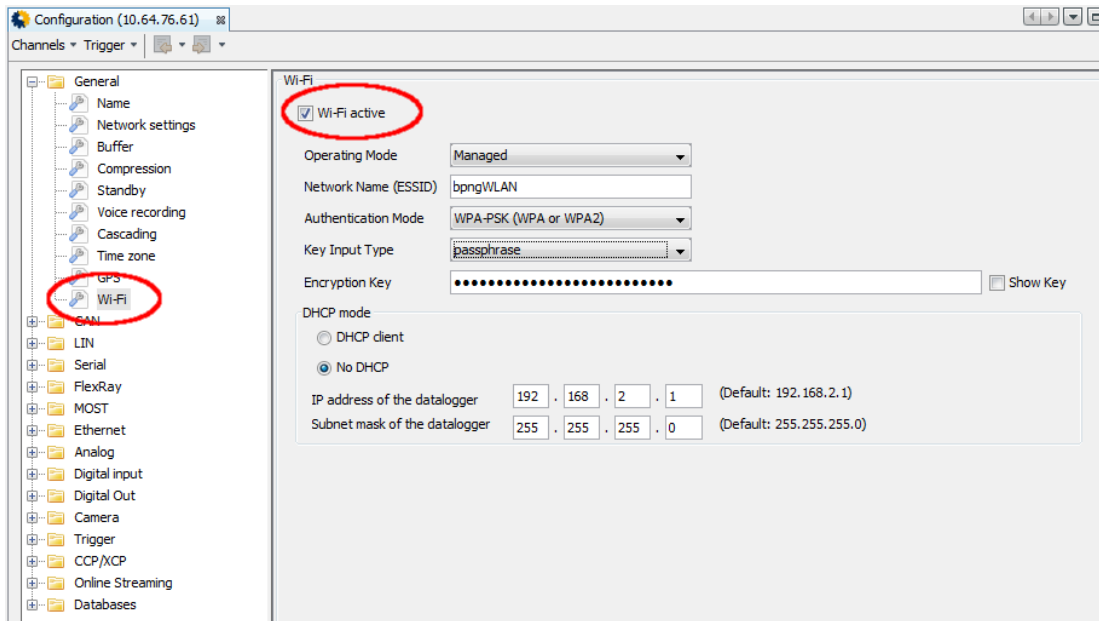


Figure 3: Wi-Fi configuration

4.1. Choosing „Managed“- or „Ad-hoc“- mode

Choose the operating mode (see Figure 4):

Managed:

Choose “Managed“- mode, if you want to connect the data logger to a Local Area Network (LAN) (Mode A) by using an access point (AP).

Ad-hoc:

It is a direct connection from the PC/laptop (blue PiraT2 Client) to the data logger (Mode B).

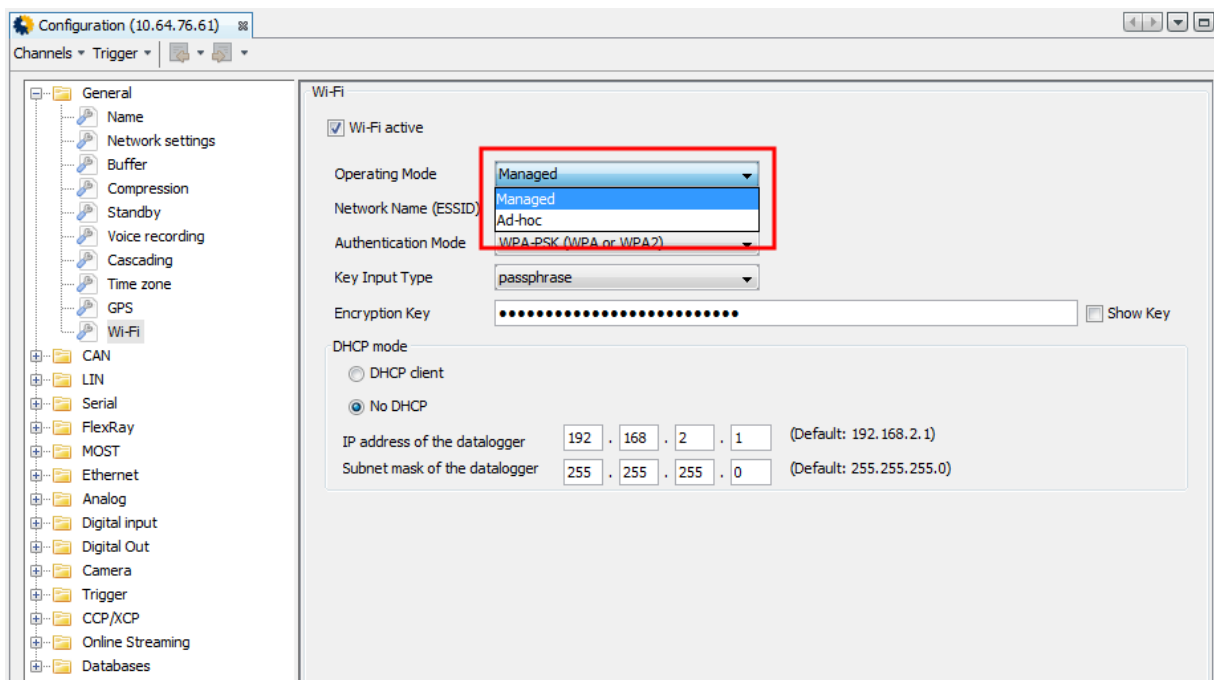


Figure 4: Change the Wi-Fi operating mode

4.2. Set the network-name (ESSID)

The network name is set individually by the user (see Figure 5).

Modus A:

For infrastructure-mode (Managed) the user has to set the ESSID (network name) for the network which the blue PiraT2 should be connected to.

Modus B:

For Ad-hoc- mode the user has to set the ESSID to connect manually to the logger.

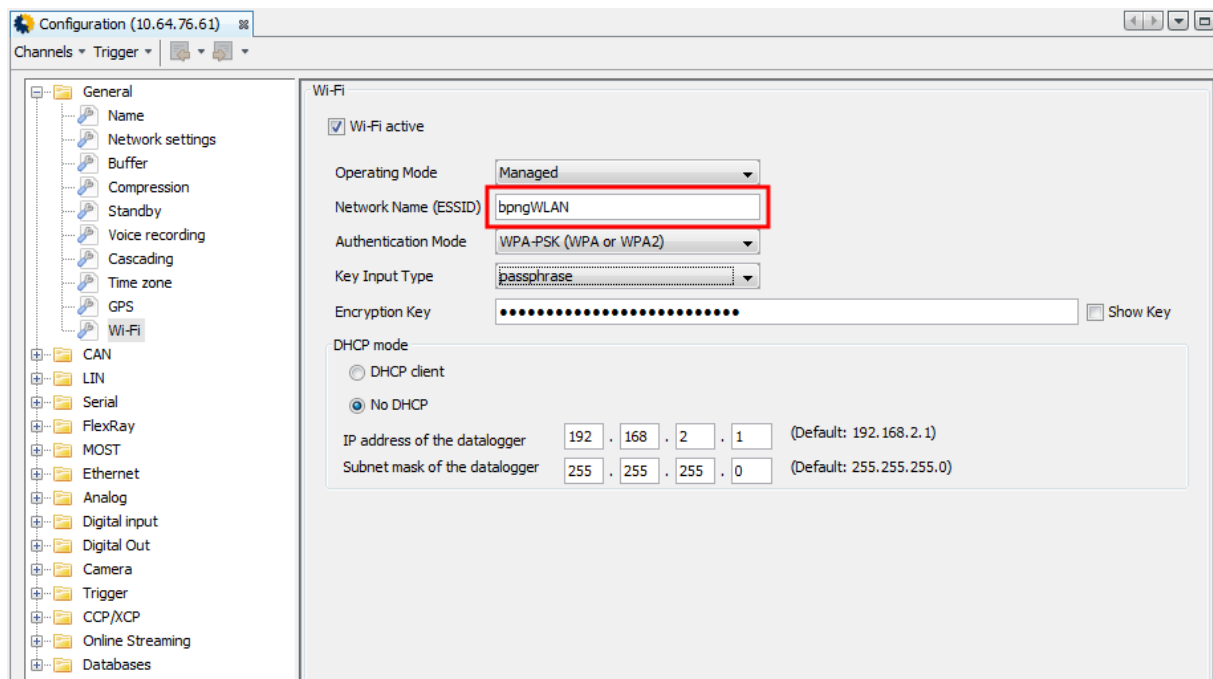


Figure 5: Set the network-name

4.3. Settings for authentication mode

The following authentication modes can be used (see Figure 6):

WEP (Wired Equivalent Privacy):

WEP is a ciphering method for wireless networks that conform to the IEEE 802.11 standard. A definite key is stored in each wireless terminal.

WEP-Open:

The client's key must match the Access Points (AP) key.

WEP-Shared Key:

It Works with a "Challenge Response" procedure. You have to set the same key at the blue PiraT2 and at your PC.

WEP-Open (no authentication)

In this case is no encryption key provided. Everybody is able to make a connection with the Logger.

WPA-PSK (Pre Shared Key):

It works just in the infrastructure mode. The key of the user is known in advanced. Keys are exchanged before communication starts. The transmitted key and the stored key must match.

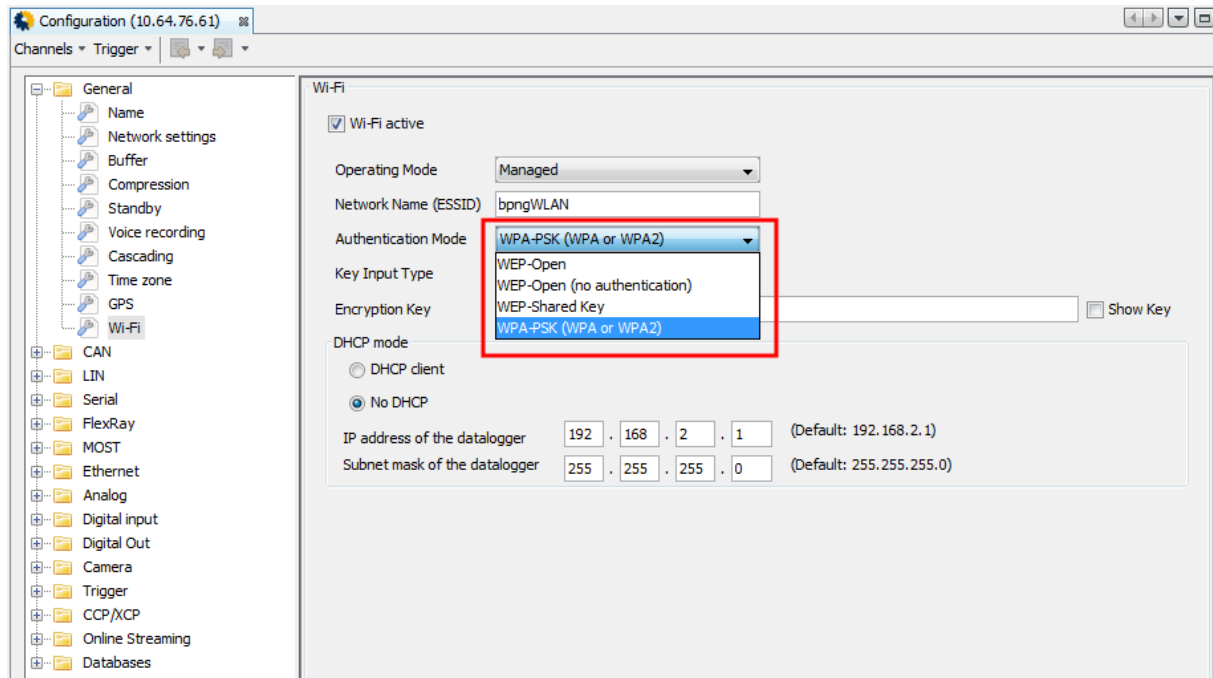


Figure 6: Selection of the authentication-mode

For Mode A (Managed) please choose the “Authentication Mode” which is used by your access point.

For Modus B (Ad-hoc) please choose the “Authentication Mode” which you want to use by establish an Ad-hoc connection via pc/laptop. On both sides, logger and pc/laptop, the same authentication mode has to be used.

4.4. Key Input Type

Choose the Key Input Type (see Figure 7):

Passphrase:

Security key is generated out from a password.

ASCII:

Security key has to be set & is displayed in ASCII code.

Hexadecimal:

Security key has to be set & is displayed in hexadecimal.

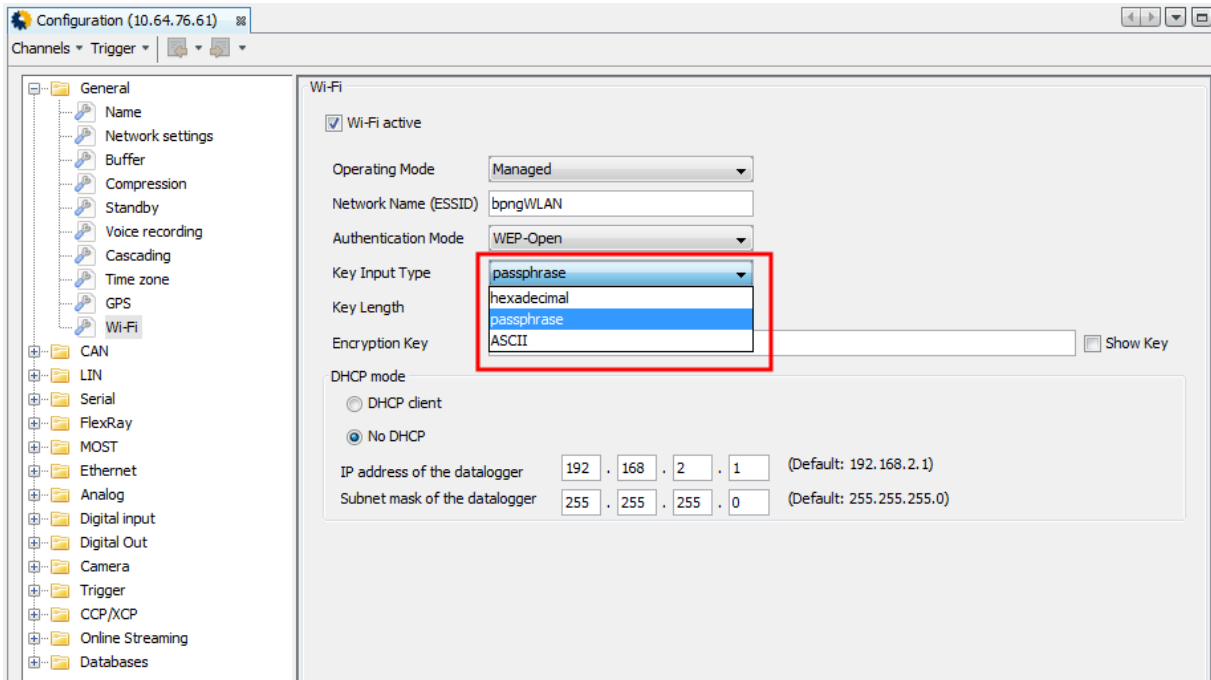


Figure 7: Selection of the key input type

4.5. Key Length & Key

Choose the key length for WEP (see Figure 8):

- 64 bit 40 bit + initialization vector 24 bit:
Hexadecimal → 10 signs
ASCII → 5 signs
Passphrase → individual
- 128 bit 104 bit + initialization vector 24 bit:
Hexadecimal → 26 signs
ASCII → 13 signs
Passphrase → individual

For WPA the Encryption Key is defined with 256 Bit.

- Hexadecimal → 64 signs
- ASCII → not available
- Passphrase → 8 to 63 sign

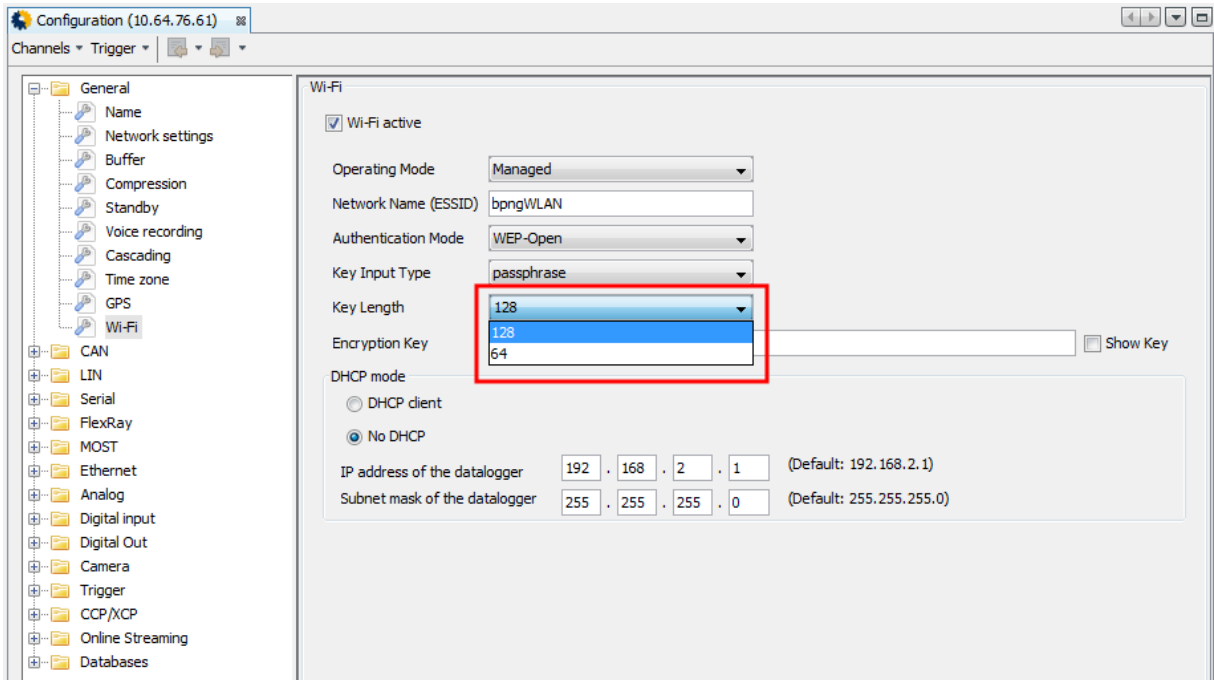


Figure 8: Selection of the key length

4.6. Input “Encryption Key”

The key is set by the user. The maximum length of the key depends on the “Key Input Type” and the “Key Length”.

If a wrong Key is set, an error and a message is shown in the Information bar (see Figure 9).

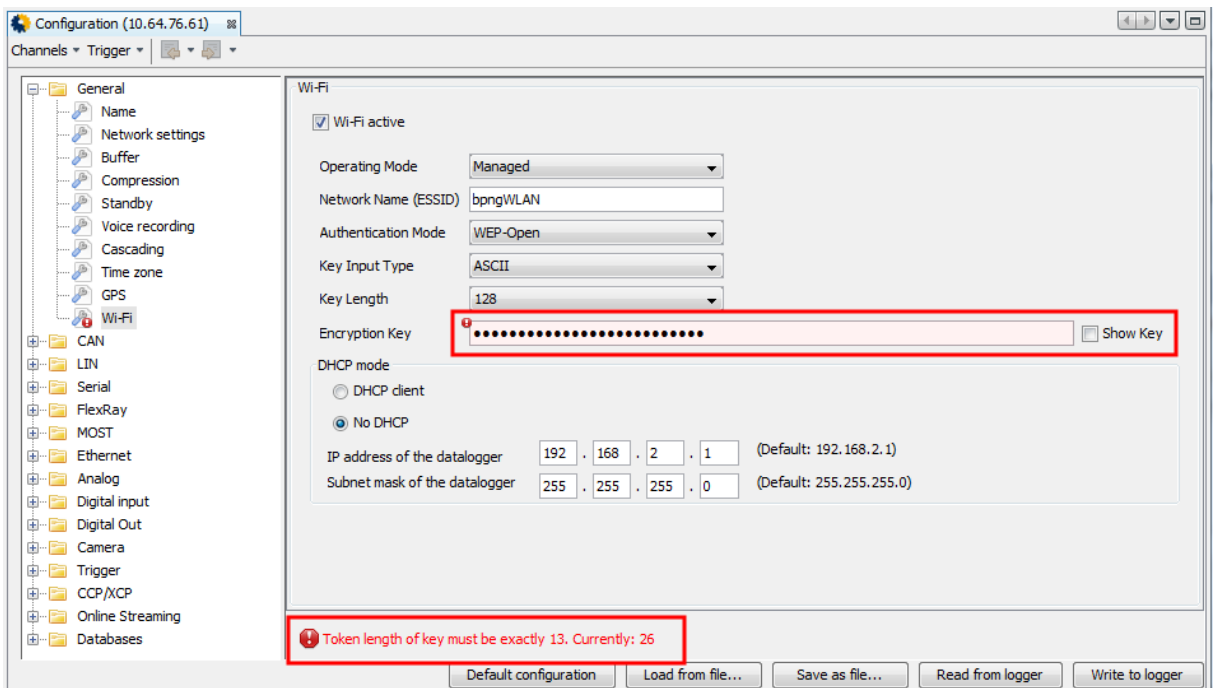


Figure 9: Wrong key is set

4.7. DHCP Mode

The last configuration setup is choosing DHCP mode. DHCP is the Dynamic Host Configuration Protocol. DHCP allows the assignment of the IP address to clients through a server.

DHCP enabled:

The assignment of IP-address/subnet mask towards the client (logger) is done by the server (see Figure 10).

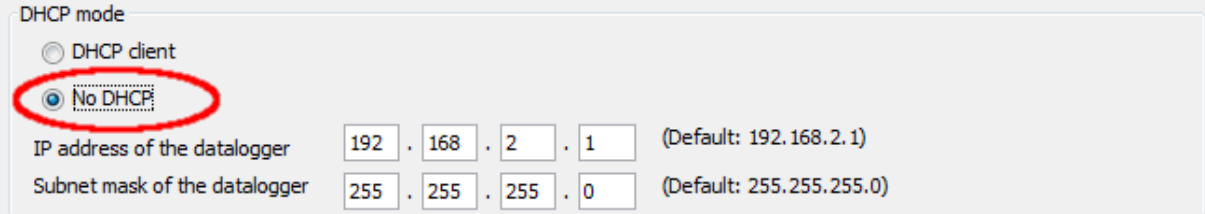


The screenshot shows a configuration window titled "DHCP mode". There are two radio button options: "DHCP client" and "No DHCP". The "DHCP client" option is selected and circled in red. Below the radio buttons, there are two rows of input fields. The first row is labeled "IP address of the datalogger" and contains four input boxes with the values 192, 168, 2, and 1, followed by the text "(Default: 192.168.2.1)". The second row is labeled "Subnet mask of the datalogger" and contains four input boxes with the values 255, 255, 255, and 0, followed by the text "(Default: 255.255.255.0)".

Figure 10: DHCP enabled

DHCP disabled:

The IP address and subnet mask must be known and entered manually (see Figure 11).



The screenshot shows a configuration window titled "DHCP mode". There are two radio button options: "DHCP client" and "No DHCP". The "No DHCP" option is selected and circled in red. Below the radio buttons, there are two rows of input fields. The first row is labeled "IP address of the datalogger" and contains four input boxes with the values 192, 168, 2, and 1, followed by the text "(Default: 192.168.2.1)". The second row is labeled "Subnet mask of the datalogger" and contains four input boxes with the values 255, 255, 255, and 0, followed by the text "(Default: 255.255.255.0)".

Figure 11: DHCP disabled

Notice: You also have to configure your notebook for Ad-hoc connections. You need an administration account on your notebook. For ad-hoc modus it is advised to set the ip address and the subnet mask manually on both sides.

4.8. Transferring settings to the blue PiraT2

If everything is configured in the right way, configuration has to be send to the data-logger (Button: "Send to logger" at the bottom right corner).

Notice: After the configuration is sent to the logger, a restart of the data logger is necessary.

5. Additional Information & Settings for laptop/pc

If you have to set your IP address/subnet mask manually (e.g. for using the Ad-hoc mode or if no DHCP service is in your managed infrastructure) please open the status of wireless network connections of your “Wi-Fi” card (see Figure 12).

You can reach the Wi-Fi settings over the “Properties”- Button (“Eigenschaften”-Button). For this step, administrator rights are required.

Now you have to choose your TCP/IP protocol. Please make sure which set of communication protocols did you use or contact your Administrator.

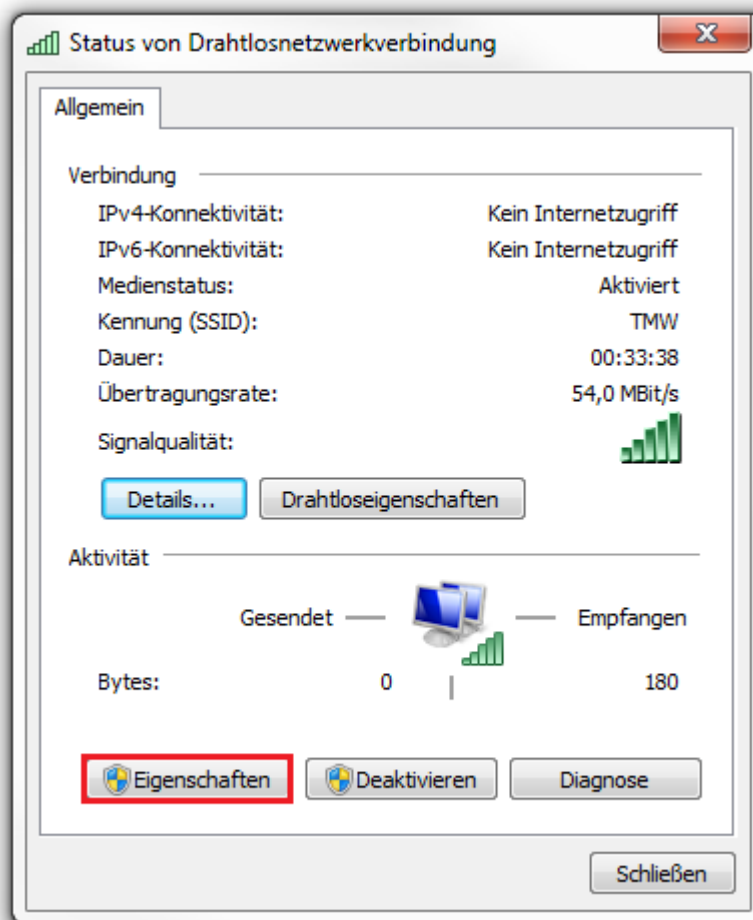


Figure 12: Status of the wireless network connection

Click on the name of your used Wi-Fi protocol. At least, click on the “Properties”- Button (“Eigenschaften”- Button) to reach the Properties of your Wi-Fi Channel (see Figure 13).

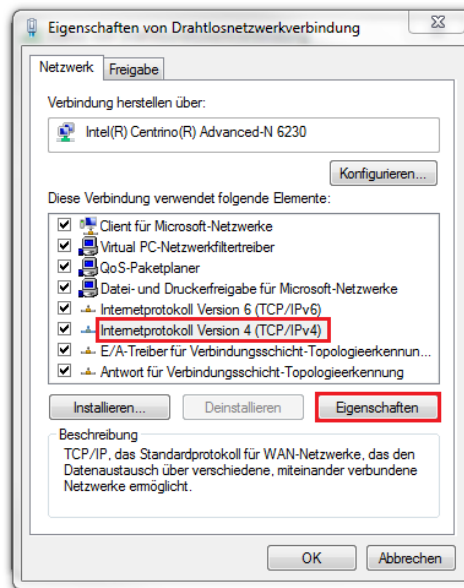


Figure 13: Properties of the wireless network connection

Click on the Checkbox “Use the following IP address:” (Folgende IP-Adresse verwenden) to modify your IP address (see Figure 14). In this Scenario we increase the last sign of the IP-address and use the default subnet mask. For the default gateway use the IP-address of your blue Pirat2.

Click on the Checkbox “Use the following DNS server addresses” to modify your DNS Settings. Right here, you have to use the IP of the blue Pirat2 as well (Preferred DNS server).

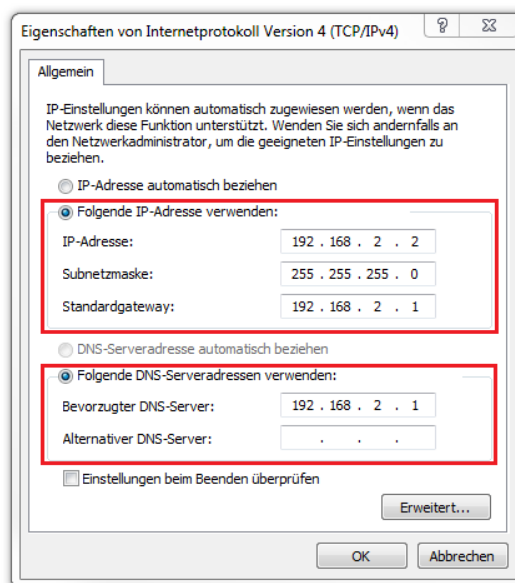


Figure 14: Properties of the internet protocol

Notice:


Manual setting of IP address/subnet mask is only necessary if you are using Ad-hoc mode or managed infrastructure mode without an DHCP server.

6. Connecting to the data logger

Step 1:

Connect your pc/laptop to the infrastructure network (managed mode) or build up Ad-hoc connection manually to the data logger.

Step 2:

Open the client and have a look at the list of network loggers. Upon successful connection of blue Pirat2 via Wi-Fi, the logger appears as in Figure 15 with a Wi-Fi symbol ().

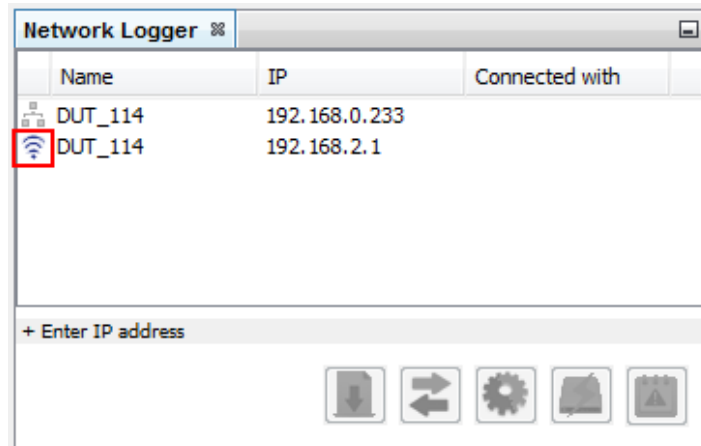


Figure 15: List of network logger

7. Contact



Telemotive AG

Office München
Frankfurter Ring 115a
80807 München

Tel.: +49 89 357 186-0
Fax.: +49 89 357 186-520
E-Mail: info@telemotive.de
Web: www.telemotive.de

Vertrieb
Tel.: +49 89 357 186-550
Fax.: +49 89 357 186-520
E-Mail: sales@telemotive.de

Support
Tel.: +49 89 357 186-518
E-Mail: produktsupport@telemotive.de
ServiceCenter: <https://sc.telemotive.de/bluepirat>